Patent Claims

1. A device for the test irradiation of objects coated with photosensitive resists having an EUV radiation source, an optical system for filtering the radiation from the EUV radiation source, a chamber for receiving the object and also means for interrupting the beam path onto the object, **characterized** in that
   - the EUV radiation source is a laboratory source (1) for EUV radiation,
   - the optical system has at least one filter for suppressing undesirable spectral components of the radiation and also at least one mirror (8) for spectrally filtering the "in-band" EUV range,
   - the means for interrupting the beam path comprise a plurality of closable diaphragm apertures (22) which enable a temporal control of the irradiation of irradiation fields that lie on the object and are situated downstream of the diaphragm apertures, and
   - the at least one monitor detector (18) is arranged downstream of the optical system in the direction of the beam path (4) and detects the radiation dose during irradiation.

2. The device as claimed in claim 1, **characterized** in that all the diaphragm apertures (22) are arranged in one plane (21) and the irradiation fields produced on the object (16) through each diaphragm aperture (22) do not overlap.

3. The device as claimed in claim 1 or 2, **characterized** in that the object (16) is a wafer coated with photoresist and the chamber for receiving the object (9) has a mount for the wafer.

4. The device as claimed in one of claims 1 to 3, **characterized** in that the radiation of the laboratory source (1) originates from a thermally emitting plasma.

5. The device and method as claimed in one of claims 1 to 4, **characterized** in that a thin metal film, in particular a zirconium film having a thickness of less than 200 nm, is arranged in the beam path (4) as filter for suppressing undesirable visible to VUV radiation.

6. The device and method as claimed in one of claims 1 to 5, **characterized** in that at least one mirror (8) for spectrally filtering the "in-band" EUV range is configured as a multilayer mirror.

7. The device as claimed in one of claims 1 - 6, **characterized** in that each monitor detector (18) is situated at a distance from the object (16) to be irradiated which is less than half of the distance between the laboratory source (1) and the object to be irradiated.

8. The device as claimed in one of claims 1 - 7, **characterized** in that each diaphragm aperture (22) is assigned a separate closure mechanism.

9. The device as claimed in one of claims 2 - 7, **characterized** in that the diaphragm apertures (22) are closable by means of at least one flat slide (24).

10. The device as claimed in claim 9, **characterized** in that the flat slide (24) is arranged such that it can be displaced in a plane parallel to the plane of the diaphragm apertures (22) and has a contour (23) enabling successive opening or closing of the diaphragm apertures (22).

11. The device as claimed in claim 10, **characterized** in that the flat slide (23) has a staircase-shaped contour (23) enabling a row-by-row opening or closing of the diaphragm apertures (22) arranged in rows.

12. A method for operating a device as claimed in one of claims 1 - 11, **characterized** in that each diaphragm aperture (22) is closed at the instant when the monitor detector or monitor detectors (18) ascertain(s) that the irradiation dose in the irradiation field assigned to the diaphragm aperture (22) corresponds to a desired value.

13. The method as claimed in claim 12, **characterized** in that the signals of each monitor detector (18) are added up in a controller and compared with the desired values stored there for each diaphragm aperture (22) and, upon reaching the desired value for an irradiation field, the controller drives a drive (14) assigned to the closure (24) of the respective diaphragm aperture.

14. The method as claimed in claim 12, **characterized** in that the desired values are generated in automated fashion by the controller.

15. The method as claimed in claim 12, **characterized** in that the desired values are input into the controller by an operator.

16. The method as claimed in claim 12, **characterized** in that the desired values are generated by the controller on the basis of parameters being input by an operator.

17. The method as claimed in claim 15, **characterized** in that the number of parameters to be input by the operator is less than or equal to the number of irradiation fields

and at least one parameter for characterizing a typical dose for the photoresist to be tested, a parameter for determining the variation range in percent and a parameter for determining the dose profile are input, the variation range defining the range between the highest and lowest value relative to the typical dose and the dose profile defining the change in the dose between two successively closed irradiation fields.